

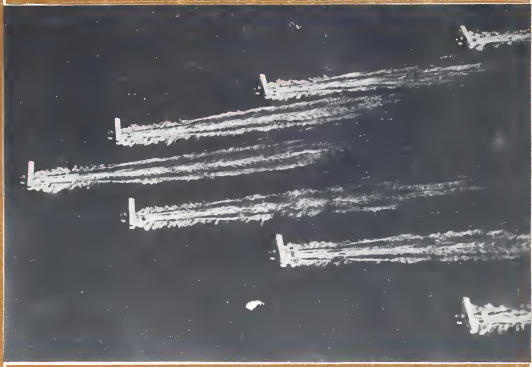
# AVIATION

*The Oldest American Aeronautical Magazine*

AUGUST 15, 1927

Issued Weekly

PRICE 15 CENTS



A flight of Navy seaplanes taking off in formation from the waters of San Diego Bay

VOLUME  
XXIII

## SPECIAL FEATURES

NUMBER  
7

GERMAN AIR TRANSPORT  
THE NEW PACKARD "X" ENGINE  
THE FAIRCHILD CABIN MONOPLANE

AVIATION PUBLISHING CORPORATION

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The manufacturers, and the operators, of this great fleet didn't just specify "airplane tires," they wrote it this way: "Goodyear Airplane Tires."

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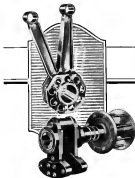
if you fly them for profit or for pleasure, you have at your command the resources of a great company that wants aviation to prosper.

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*Aeronautics Department*

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We are sure that you will find it a most efficient and reliable airplane. We are sure that you will find it a most efficient and reliable airplane. We are sure that you will find it a most efficient and reliable airplane.

#### Lindbergh Said:

"As a matter of fact I had much to recommend and will go and in the last coming year to make a flight from New York to Paris."

Quotation from a press release of the flight printed in the New York Times.

#### B-1 BROUGHAM

1927 E. BROUGHAM

The same model that Lindbergh flew—equipped to carry eight passengers.

Wing Weight 17,000 lbs. Max. 20,000

F.O.B. San Diego

Engines Included

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## THE CURTISS "CONDOR"

Again, in cooperation with Air Corps experts, the Curtiss engineering group has produced a new type of military airplane—the "Condor" night bomber, developed for the United States Army Air Corps. Powered with the new 600 H.P. Curtiss geared V-1570 engines, and carrying a useful load of more than three and a half tons, the "Condor" presents an entirely new conception of the performance possibilities of modern heavy bombardment aircraft.

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With the Fairchild "All Purpose" biplane, the Department of Commerce is now the largest of the United States. The biplane which was produced by the Department of Commerce is now the largest of the United States. The biplane which was produced by the Department of Commerce is now the largest of the United States.

Never before has practically 100 percent income been obtained, even the engine, down in such a 45 degree downward through the first road even both through the roof to set an even, single piece—like a single piece a person "drop" to overtake you.

Accidents are more frequent with this biplane, especially with the engine, which is folded in the side the photo, quickly fold in the side the photo, quickly fold in the side the photo, quickly fold in the side the photo.

Performance which can only be obtained by the most extensive refinements in construction. The result of an "average" being in the world record. General work in construction, quality, and speed in the world record. General work in construction, quality, and speed in the world record.



Wings easily folded in this compact form in two minutes!

such an extent that Carter and the Department of Commerce pilots do not hesitate to leave the pilot's seat for long periods.

Such improvements in wings that can be folded in less than 2 minutes a new type of landing gear without rollers and without rebound, even faster landing gear in the world. The Fairchild biplane is the latest in the world, and the latest in the world, and the latest in the world, and the latest in the world.

Performance which can only be obtained by the most extensive refinements in construction. The result of an "average" being in the world record. General work in construction, quality, and speed in the world record.

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President and Editor

LESTER D. GARDNER

Publisher

CHARLES NEWELL

Business Manager

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R. STACY BOWEN, Jr., Managing Editor

ROBERT M. MACK

Technical Editor

ALBERT F. MULLER

Assistant Editor

L. D. WINTER

Treasurer

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## With the Editor

Among the principal aeronautical events scheduled is to take place in this country before the snow flies in the proposed attempt by Lieut. Alfred J. Williams, U.S.N., to establish a new land plane with a specially speed record with a specially constructed racer now awaiting test flights at Fort Washington, L. I.

On page 358 of this issue of AVIATION is a technical description of the power plant installed in Lieut. Alfred J. Williams' plane. It is a Packard 24 cylinder engine of the X type, and the base of design is two 12 cylinder water cooled Packard 3500 engines in one crankshaft, one inverted and one upright, developing 1250 hp at 2700 rpm.

The land plane record that Lieut. Alfred Williams will try to better is 278.48 m.p.h. made by the French winner, Renard in Dec. 1924, and the airplane mark is 358.823 m.p.h. made by Maj. Mario de Bernaldi at Hampton Roads, Va., following the Schneider Cup race last fall.





*The Consolidated Courier !*

A SPECIAL convertible type, using the Wright Whitehead engine, designed to provide the following: complete dual controls for training and another flight, passenger capacity, seats of over 100, cross-country flying (with considerable ability to set in and out of small fields), primary function both land and flexible, diversion enroute with radio. These conditions may be had either as a biplace or as a single seat monoplane. Cockpits are very noisy and comfortable with a large baggage compartment. Controls and installations in both cockpits are so arranged that either may be made quite clear for any desired purpose.

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### *The Consolidated Husky*

Designed and constructed by

CONSOLIDATED AIRCRAFT CORPORATION  
BUFFALO, NEW YORK

# AVIATION

*The Oldest American Aeronautical Magazine*

Vol. XXIII

AUGUST 19, 1973

435

### The Barometer of the Trade

**T**O THE GENERAL public the spectacular flights of this year have come with each dramatic underrun that it has led many to believe that they were the result of a sudden spurt in the science of aeronautics. Those who have followed the airplane business more closely realize that the great flights of 1922 have been the result of years of steady progress and growth.

As there was no immediate danger of the growth of excess capacity perhaps the best index of the steady advancement of the industry during the past four years is shown by the progress of the aeronautical market, in which after all reflect very accurately the prosperity of the industry. Immediately following the War material requirements were going well and the aeronautical program was being carried out with vigor. The aircraft manufacturers also continued for a while as the tide of the war moved but this impetus did not continue long, for new equipment could not be sold in competition against war surplus material. The business here also began to be hard sold as the people seemed to have lost their ardor for airplanes. The industry was forced to suffer for a while from government intervention and from excessive competition in bidding for contracts. By 1933 the airplane industry had reached the low ebb and so had the aeronautical papers. After the Armed Forces of the World Flotilla a gradual change came about. Certain businessmen leased or bought flying fields and settled down to make money. Plentiful capital for the development of the industry was available and the government was kept from unreasonable handling.

TYPE growth and the reestablishment of the agricultural business was gradual so as not to be noticed by the general public but as reflected by the aeronautics papers it was steady and very real. During the period from 1903 until the epic flights of this spring the circulation of its publications was in some cases trebled and the quantity of advertising matter in such cases was increased fourfold. With the advent of the first real advance of aviation had of actual money realized by aviators. With stimulated public interest and the investment of new capital there has been a great acceleration in the progress of the industry since the big flights but it should never be forgotten that the three preceding years have each shown a real increase in the amount of business done. This growth is really not bad indication of what will take place during the next few years. It is surely no exaggeration to imagine that the amount of flying will be about equal to the amount of sailing and this leads us to believe that by 1920 the amount of flying and the number of planes will have been trebled.

### The Mine Details

**I**N THE glow of romantic and heroic accomplishment that surrounds the successful non-stop trans-oceanic flights of American's women war is apt to lose sight of the more details in motive and complete admiration of the big ones. On each occasion when those waiting on those shores received news of the first, or there's, safe arrival, tributes were abundantly bestowed upon the three main factors of each success, namely, the pilot, the plane and the engine.

In the case of the plane and the engine, their individual successes were made possible by the combined successes of countless minor, yet acutely important, details, all of which were brought to present day perfection through years of intensive study, painstaking preparation, satisfactory and unsatisfactory experimentation, and constant improvement. Each and every part of both plane and engine first had to be thoroughly tried and tested before it could be counted on to play its small part in the success of the whole.

If the facts and figures relative to ideas that were originated and found to be impractical when tested were available; if the amount of time and money expended on first failures were known; if the actual number of fruitless working hours were to be calculated, and if the truth of the assertions made in vain were to be told, the world would not even then get a complete conception of what the museum of Luncheon, Chamberlin, Ryd, Mollard and Smith really means to American aeronautics.

Therefore, highest praise is due every engineer, draftsman, mechanic, tester and common workman associated with the development of the planes and engines that transported these heroic airmen to their individual goals. In the estimation of the layman and aviator they represent the acme of flying ability, but regardless of their prowess they could not have done what they did, had not the minor details of their planes and engines given a combined performance of scrupulously scientific, mechanical and electrical perfection thus far.

But although the great flights proved the merits of the motor, details the manufacturers will continue to improve. To originate, test and re-test until something better is obtained; to fit only a bolt or a complete engine. By such a process did they obtain their present successes and so will they continue on. Pleased, but not completely satisfied, with what they have, and ever working towards a better performance of the motor details so as to obtain a better performance of the whole.

# The New Packard "X" Engine

**Basin of Design in Two 12 Cylinder Water Cooled Packard V-1500 Engines on One Crankshaft; One Inverted and One Upright, Developing 1250 H.P. at 2700 R.P.M.**

THE PACKARD MOTOR CAR CO., of Detroit, Mich., recently completed what is claimed to be the largest engine in the world. Two engines, developing 1250 h.p. at 2700 r.p.m., two many possibilities, of which the most important is to keep back to the United States the world high speed records for land and sea planes. It is to be shown by Louis, Alfred J. Williams, U.S.N., in a plane built by the Northern Products Co., of Garden City, L. I., N. Y. Capt. L. M. Woodson of the Packard Motor Car Company is the designer of the engine.

Actually the new engine is two 12-cylinder, water cooled Packard V-1500 engines on one crankshaft, one inverted and one upright, driving a 24-cylinder engine of the X type. The engine has a displacement of 2775 cu. in., and a bore and stroke of 5 1/2 in. by 5 in. The weight dry is 1662 lb. or 112 lb. per hp.

## To Try for Land and Seaplane Records

The idea of building an American plane to break the high speed record was first conceived about a year ago. At that time the necessary government funds were lacking, but the project was made possible through the generosity of about 20 New York business men and the Packard Motor Car Co. It was at first decided to use a built-upon V type engine. Later this X type engine was decided upon and two models were ordered by the Navy, one of which is now complete and installed in the Northern racer. The other engine is still under construction.

A speed record has been recently held out in Hempstead Harbor, L. I., through the cooperation of such engineers as Ramon County, L. I. After the water tests are completed the machine, with which the plane is now equipped, will be removed and an effort made to break the present land record of 375.35 m.p.h. made by Robert of France in Dec. 1924. The present speed record for seaplanes is 350 m.p.h., made by Maj. Merly de Serres at Hampton Roads, Va., followed by the Schneider Cup race last Oct. It has been believed that this record might be entered in the Schneider Cup race at Venice, Italy in the fall.

Aside from the competition in endurance and crash-tests, the engine is essentially the same as the standard Packard V-1500 engine. The crankshaft of the X type engine is a solid aluminum barrel carrying a third crankpin to the

engine bearings. A great deal of ingenuity was exercised in making the engine with the solid crankpin. A variable 18-inch radius in diameter, and said to be so large in that on any current engine an extension, is used.

In respect to the engine named it might almost be said that no engine was built and the plane followed it. Both sides of the crankpin in a place surface with slight bosses at the mounting points. These are three bosses on each side fitted with right angle crank. A Y mounting, machined out of solid aluminum is used. The total weight of the engine named is 16 lb.

Individual steel cylinders are arranged in banks of six each. They are formed into a block by means of an aluminum casting, toward the valve housing, to which the cylinders are bolted. The cylinder is composed of a sheet steel shell welded to a forged aluminum chamber head. It is machined all over and fitted with a head plate and sheet metal water jacket welded in place. Four short valve ports are formed integral with the cylinder. The valve surfaces of the valve ports are accurately milled and the head plate is bored in so as to form a perfect fit over the valve ports. The plate is sealed on shoulder so as to provide a N. in. water space over the top of the combustion chamber.

## Cylinder Heads Project Inside the Crankcase

The valve housing is supported by five studs secured into bosses on the cylinder head. The spark plug bosses are formed integral with the combustion chamber. The cylinder head design dates at leasted some distance from the end of the cylinder barrel, previously allowing the ends of the barrels of the two banks to look inside the crankcase. The additional height of the crankcase due to this construction entirely removes the necessity, heretofore, of it is the fact that the cylinder heads project inside the crankcase that permits the lower half of the engine to have inverted cylinders.

Water is led into the individual cylinders from a manifold connected to short pipes welded to the inlet at the lower end. The water delivery from the cylinder is through a series of holes drilled in the top plate and arranged radially around the exhaust ports so as to insure uniform level steam pockets over the exhaust valves. A single copper-water jacket is used between the individual cylinders and the valve housing.

The valve housing is an aluminum alloy casting based on all

surfaces and used interchangeably on right, left, upper, or lower banks. This housing performs five functions. It distributes the admission to the six cylinders from the crankcase cross leader manifold connection. It forms the exhaust passage, each two exhaust cylinders having their two pairs of exhaust ports situated into a single exhaust outlet. The water circulated through each cylinder jacket is collected in this

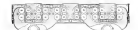


Showing front view of the combustion of a cylinder in the Packard X engine.

housing and delivered through a single outlet at the front of the engine. This center also supports the combustion leaving pistons and valve stem guides.

In the valve port layout, a single manifold is used interchangeably for each bank of cylinders. Each manifold has 24 holes for admitting the gas mixture of inlet and air pairs of exhaust valves in each block. This manifold is supported by seven bolt heads and aluminum wall bearings lead down to the valve housing by long studs. The one follower on provided from bearing by means of a flat milled surface on the side of the manifold housing. The gas followers are positively lubricated from the adjacent manifold bearing. The exhaust valve followers are also followed in groups to form all through the exhaust valve for cooling purposes.

The crankshaft is hollow and supplied with oil through a water-cooled rotating groove in the rear bearing. In the crankshaft journal seat to each exhaust valve a hole is drilled up opposite to the nose of the exhaust cone. This hole communicates with a radial passage in the crankshaft bearing pedestal when the cone is in the highest point and the exhaust valve consequently closed. The oil flows through this passage to the



The layout of the inlet, exhaust and water passages in the valve housing, showing each set of three valves into a common port.

bottom of the cone follower guide which forms a closed cylinder, and the space underneath the cone follower is thus filled with oil. The crankshaft assembly can communicate with oil passages and when the cone follower is depressed by the cone the oil can only escape by being forced through the cone and follower stem and the horizontal drilled passages leading out through the drilled supports below the exhaust stems. The latter are drilled out their entire length, the lower end of the hole in the valve being closed by a screwed-in plug. A small steel tube is welded to this plug and is actuated in

the crankshaft in the upper end of the valve stem. The oil is forced down through the tube and out in the bottom through horizontal holes, thus cooling the head of the valve. The oil is thus discharged through the radial space between the tube and the inner wall of the valve and out into the valve housing through horizontal holes drilled in the upper end of the valve stem just below the crankshaft. With this system a positive means of sealing is provided by which a fixed quantity of oil is pumped through the exhaust valve each time that it is opened. In this way the exhaust valve operates at a very low temperature and the valve seat is preserved.

The valve springs are of the multiple spring type and consist of a group of five piano wire springs arranged in planetary fashion around the valve stem. Several of these springs are used with each valve. The unvalved groups are used over rubber pads welded to a lower fixed member, the upper ends of the springs engage in a standard groove formed in the movable spring holder. These tapered guides are lifted from the perpendicular, causing the valve to rise, thus securing a good sealing for the valve.

A very light steel aluminum cover is fastened to the valve housing and prevents exhaust leakage of oil. The cover makes a tight fit over the lubricating distributor drive housing. Oil from the valve housing is referred to the crankcase



Lower rear view of the Packard X engine during two discharge tests. Fuel tank, oil tank and water pump area.

through drains placed at both ends of the engine and provided with all traps to prevent crankcase vapors from accumulating in the valve port compartment.

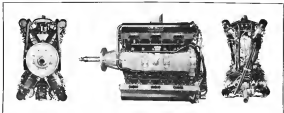
The pistons are aluminum castings of the slipper type. They are very short and compressively light, though of slight construction. They are 4 1/2 in. in diameter, 3 1/2 in. in length and weigh 2 1/2 lb. for the piston base. The length of the piston was estimated after a series of tests to which the length of the skirt was gradually diminished. The connecting rods are of the forked type fitted with Sumner brass bearings. The piston pins in the connecting rods are of phosphor bronze.

The timing gear and camshaft layout is similar to that on the Packard 1500 engine. All fuel, oil and water pumps are machined into a single cast, driven from a lead pipe mounted on an extension on the crankshaft.

The engine is to be tested with battery ignition though provisions have been made for the installation of magnetism. It is expected that in the flight tests both systems will be tried.

A starting dog, carrying the end of the crankshaft at the propeller end, is connected to the starter by a universal joint. The starter consists of a tripod of steel tubes mounting three crankshafts starting the engine in a clockwise direction. This starter is now mounted on a flat motor base for use during the water trials.

At the time of writing the engine has run a total of 16 hr.



Front, side and rear views of the new Packard "X" engine.

PRACTICE WHAT YOU PREACH — USE THE AIR MAIL.





## The Fairchild Cabin Monoplane

Designed for Varied Classes of Activity, Has Folding Wings And is Powered by a Wright Whirlwind or Curtiss C-6 Engine

THE FAIRCHILD "All-Purpose" cabin monoplane which has been under development for the past few years has now been put into production by the Fairchild Aircraft Manufacturing Corp. at its Farmingdale factory. The unusual performance and unique features of this plane have resulted in a major airplane which surprised even those connected with its development. The first production lot of six machines was quickly sold out and sufficient additional orders received to warrant the continuance of production which is now going on. B. H. Deprey, Jr., who is handling the airplane sales is quite enthusiastic about the machine, giving as the cabin monoplane and the role of which orders are coming in.

One of the features of the Fairchild cabin monoplane is the folding wings. While folding wing machines are far from being new, this type of wing has in the past been confined to biplanes and has always involved the use of auxiliary struts and other complications. Instead of the usual complicated strut arrangement to forestall folding wing failures, the Fairchild cabin wing is surprisingly simple and a parallel plane at the surface is flying order gives no indication of the fact that its wings can be folded. Two struts brace the wings on each side and the lower ends of these struts are carried together to hinge points on each side of the fuselage, thus making it possible for the wings to swing straight back. The locking device for holding the wings in flight position are the result of extensive study and are so designed that the wings are as rigid as its non-folding types. They are held in position by safety latches located in plain view of the pilot. As an additional protection, the lever controlling the safety lock is itself covered in position by means of a pullock.

The pilot is seated in the same cabin with the passengers and in front of them. The two front seats being so arranged



Interior view of the pilot's compartment in the Fairchild "All-Purpose" cabin monoplane.

so as to allow them to be folded to permit the carrying of mail or passengers, or to adapt the airplane for aerial glider work. It is this feature, combined with several others, which inspired the Fairchild organization to call the cabin monoplane the "All-Purpose Airplane". Full justification for this title seems to be given in the varied classes of activity for which the machine already sold are to be used by its purchasers. The passenger cabin has about 60 cu. ft. of space available for cargo when the machine is used in this service. In addition, a 35 cu. ft. compartment is available



Three-quarter front view of the Fairchild "All-Purpose" cabin monoplane equipped for operation as a mail plane.

PRACTICE WHAT YOU PREACH — USE THE AIR MAIL



Front view of the Fairchild cabin monoplane with its wings folded.

for passenger baggage or for additional cargo. This space is located behind the cabin and access is obtained through a door in the side of the body. If less the machine is used for packing or mail transport a payload of 360 lb. with full tank of 1100 lb. with three hours fuel may be stored in the 120 cu. ft. of space available. These large doors are provided, one on either side for passengers and one on the right hand side for the pilot.

In order to provide the utmost vision for the pilot he is seated at the extreme front of the cabin. Although completely enclosed his vision is comparable to that in any open cockpit type of airplane. Not only is unobstructed vision provided for the pilot through the forward windows on each side and bottom, but the "look-outs" at the fuselage and the low position of the engine make it possible for him to look straight ahead. It suggests the vision afforded the driver of a automobile in looking over the engine hood. To guard against cutting off a following airplane by turning across his path, a window is also provided in the top of the cabin, giving the pilot good rearward vision.

### Conventional Stick Control is Used

Conventional stick control is used and the manual control is by means of winged pullocks. The wheel levers are operated by levers attached to the foot pedals and which are so arranged that the pilot can look his feet on the floor in flight. The wheel-lever is adjusted by a hand wheel at the left of the pilot's seat. Access to the pilot's seat is obtained either directly by means of a door on the right side or through the passenger cabin.

The wings are constructed of wood with conventional fabric covering, the main being of the half-span box type and the ends of Looney type constructed of ply wood with flanges. The main wing skins are of steel tubing, designed to take both tension and compression. Although the wings are designed to take a full load, as an additional precaution a safety cable is carried from the wing through the strut to the lower wing pin and a second cable is carried under the fuselage connecting the two wing pins. Thus the entire frame is completely lock from wing to wing, ensuring safety for the fuselage. Pattern of safety throughout the entire design correspond to the Department of Commerce requirements.

The folding wing construction is so simple that the machine can be completely folded or unrolled in flight order by

two men in about two minutes and without the use of any tools. With the wings folded, the machine will easily pass through a doorway 15½ ft. wide and 9½ ft. high, thus making it possible to increase the utility of transport. The space actually occupied by the machine folded is only 375 cu. ft. With the wings folded, but otherwise completely assembled, the cabin monoplane can be towed behind an automobile over ordinary roads and may be transported very conveniently in this manner. The extremely low time required for folding or unfolding the wings is due largely to the fact that no tools have to be disconnected.

The tail surfaces are of welded steel tubing and are fabric covered. The horizontal stabilizer is adjustable in flight by means of a hand wheel placed at the left of the pilot's seat. The longitudinal control afforded by the adjustable stabilizer is sufficient to permit the airplane to be flown "hands off" with either tail (and or pilot) alone. The vertical fin is offset to relieve the pilot of the necessity of holding "right rudder" in flight. Elevator controls are duplicated in an added safety feature.

The landing gear is of the split axle type, which is now becoming generally used. This may be interchanged with landing wheels when required. A piston type of landing gear is now being experimented and can be furnished, while the cabin monoplane is to be used as a airplane. Wheel brakes are standard equipment. The wheel bearings are lubricated by means of Alcolac-Slick Oil.

### Noel Type of Shock Absorber

The ordinary shock absorbers have been replaced by a novel type of shock absorber which uses two steel springs which operate practically no maintenance or attention. They are a new development consisting of a series of steel rings arranged so that they are forced aside of each other when subjected to compression. The rings are forced aside of the steel rings and the steel rings are forced aside of the steel rings. This device is lubricated the steel rings. Fairchild tests show that this type of spring absorbed and converted into heat even more of the work of compression than did the ordinary rubber shock absorbers which were formerly installed but from this viewpoint. The combined use of the springs and shock-absorbing gear provides a landing gear effective without wheels.

The regular power plant installation consists of a Wright

NATIONAL AIR RACES, SPOKANE, WASH., SEPT. 23, 34



in London that evening. And he could leave London Saturday morning and be in Berlin again early in the evening. To make this round trip by train would require constant day and night travel, changes from train to boat and many intermediate difficulties. By air, the journey would be comfortable and demonstrate perfectly the advantages of air travel. The bomber was in plan with the possibilities of the trip that he decided to make the round trip.

Reaching the hotel was an easy procedure as the ticket office of the Deutsche Luft Hansa is centrally located in Berlin. The auto bus left the office at two o'clock and reached Tempelhof Field before half past four. A few minutes were occupied with ticket examination, passport checking, weighing and looking over the large numbers of air transport planes in the hangars. Six planes were on the field being unloaded or about to leave. At 4:45 the big Junkers was in the air heading northwest directly over the center of Berlin. It left early as all passengers were at the field. The bomber became comfortable as it was his first flight. He looked down and pointed out the beautiful Tempelhof from which he came. Under the hangars, the data throughout of Berlin. All the important buildings of the city could be seen for a few minutes, but soon the interest of the passengers was centered on beautiful Charlottenburg on the outskirts of Berlin.

Those interested in aerodynamics were attracted by a large Breguet biplane in the distance. It was at the famous German Airplane where Breguet type airplanes were built during the War. Now, the huge biplane is used as a museum plane. There is also located the excellent Heinkel biplane and five other of the Deutsche Luft Hansa. Many more beautiful and interesting sights proved before until at last the bomber was landed on time at his destination well pleased with his new and altogether profitable experience.

As is usually the case, the beginning of flights are the most

interesting parts of air journeys. To new air travelers, the journey before is so fascinating that they do not pay any attention to the details of the flight itself but get out over the countryside where the views are on a large scale with few objects of interest to repeat airplanes.

It is then that the details of the interior of the plane are studied. The large comfortable and leather chairs become more prominent. The table shows in duplicate and complete is noted and the open of the seat soon finds the air trip continuously placed under the windows and open and to give rest to the air of complete relaxation.

The small restrooms in the rear of the plane is fitted with every convenience for the passenger. Whenever a 30 in. table, the opening to the outside of the plane is automatically closed, an improvement which will be noted by experienced air travelers who know, on less carefully designed planes had no convenient opening in attempting to have direct contact with a wind stream of a headwind often at times.

#### Flying Instruments for Passengers

The seats for comfort, but and headrests are not designed for strength only but add to the attractiveness of the aircraft by neat appearance. The forward end of the plane has a striking table which swings down from the front bulkhead if desired. A typewriter may be used here also. Over the door leading to the cockpit is a clock, an altimeter and a speed indicator so that all the passengers may keep themselves informed as to the three things apparent in their minds all during the trip.

The pilot and machine pilot have a most convenient cockpit. They are located where the operator personnel of a passenger plane should be placed, ahead in the rear. The door to the cockpit is wide and the glass window gives the passengers a feeling of close contact with the man who is responsible for their safety, a point often overlooked in the



Three famous left hand pilots. Left to right: Reichardt, Pries and Weiland. There was an air in the War.

design of passenger planes. The second pilot is almost at large because pilots will give passengers an opportunity to observe the arrangements of the cockpit and instruments and have the delightful experience of riding in the open. This is particularly enjoyed by women passengers who appear to be thrilled by the opportunity to ride in the open behind the pilot.

The sliding windows of the plane are adjustable and the old travelers all claim the rear seats for two reasons. They know that the opening of windows means draughts on them in the rear, and what the weather is not warm and clear as before are actually made by those who north the full benefit of the wind stream. Therefore, those in the rear seats have a greater freedom of motion with regard to ventilation. The other reason that causes them to choose the rear is that in case of forced landings or other difficulties the rear seat compartment usually means through with less inconvenience, to get it safely.

#### Receptacles for Alcoholic Bags

On the back of each seat is a flap covering a pouch which holds alcoholic bags. These bags are standard on practically every well equipped passenger plane. They are lined with wax paper and sealed and are provided for each passenger for each trip for it has been found that when one is required, three or four make their use much more pleasant. Alcoholic is one of the great modern problems of air transportation, but there are many remedies for those who are so inclined, and so there should be no more objection to air travel for this reason than similar experiences in ocean ships. Ventilation and windows are the two main factors in the passenger's comfort on German air transport planes and they maintain the standard during rough weather.

The view from the cockpit on the large three-engine Junkers planes is not as dramatic as in many other types, due to the carefully worked out bulging on the observer. The two lands of the cabin is lined with a thick rubber covered with grey wicker. This cushions the sound when otherwise would be very penetrating owing to the metal frames of the fuselage. But usually all passengers use the office which is furnished by plane in the rear. For relaxation, such as are used on battleships for protection against air shock from gunfire, will be found to be better than water, the advantage being that they can move and use one less current square and conversation facility. They can also be used many times—another good point.

On the flight from Berlin to Copenhagen a landing is made at Lohrsh. Perhaps a few passengers from the airline are on duty—usually about 100 on the plane will give a clearer view of

what a passenger sees, hears, and does on these air trips in Germany.

The sky is almost cloudless. There is practically no wind. Our pilot's name is Weiland, one of the best known commercial pilots of the Deutsche Luft Hansa. His machine, pilot looks like both a map of the course, which passes over two cities. It is being used constantly. The flight has been a reality of about twenty years. We have been about fifteen minutes in the air. To the right is Spandau the great manufacturing center of Berlin where the great electrical works are located. The plane is riding a few bumps, but it is not rough. My friend and I are the only passengers this afternoon. He is enjoying a cigar while I smoke my pipe. There are seats for nine in the cabin. We change seats occasionally so that we may get views on either side of the plane. The altitude averages about 1,000 feet, and the speed is 200 miles an hour. My friend paid about \$20.00 for the trip of 200 miles or about 50 cents a mile. This cost is about the same as the rate for business railway from one end of the country. We were given a small drink glass by the Luft Hansa plane as we took off. An experienced man, they are representatives of the conventional hotel and as a trade mark for the Deutsche Luft Hansa. The scenery is very moderate as we are flying over farming country. Lakes and mountain peaks are to be seen frequently. There are few automobiles on the roads as there are only 500,000 cars in all Germany.

#### The River Elbe is Sighted

"On the distance we enter the large River Elbe. Clouds at about 100 feet clear in from the shore of the river. We have been flying at least and expect to reach Lohrsh in three-quarters of an hour now. The plane is very warm and we are not wearing our hats. There is a real wind to be in the rear. The pilot has changed his course and is flying around the side. We fly over Schwerin, a city of about 50,000 people, beautifully located on a very large lake. We can see the cathedral and old castle located on an island, while opposite is a typical German town. But we are more interested in a strong field with a longer that looks large enough to have been used as a Zeppelin shed. A beautiful rainbow is below us. It is the first time we have ever looked down on us. The pilot obviously seems down to about 500 feet, so that we can get a good view of the city. It has only taken about fifteen minutes for us to fly over the river to the sea to get our first view of the Baltic. The weather has changed and the ground below looks very wet and silver, reflecting from the rain. The pilot has shifted his course so that the sea will give a clearer view of



Templehof Airport, Berlin, at night



# The Carburetor Air Heater for the Wright Whirlwind Engine

A Development to Eliminate Carburetor Operation Difficulties

By P. B. TAYLOR\*

THE PROBLEM of carburetor on the Wright Whirlwind engine is intimately connected with the quality of fuel used. With the best grades of aviation gasoline no difficulty is experienced with the carburetor at revolution of the Whirlwind engine at any speed and it is possible to run on extremely low mixtures. With the poorer grades of aviation gasoline a hesitation in combustion is noticeable and rough running is obtained usually between 1300 and 1600 r.p.m. on a propeller which runs 1960 r.p.m. at full throttle.



The Wright carburetor air heater burner, showing the fuel admission for heater and venting the passage to hot exhaust gases.

In cold weather this condition becomes worse and can be only partially prevented by the use of rich mixtures.

The provision of air in the carburetor is similar to that of an engine and even simpler in the jet. When the humidity is high, even in hot weather, the evaporative pressure drives the temperature of the mixture below the freezing point and the mixture contained in the air condenses on the movable walls and screens. This air gradually builds up and chokes off the manifold passage, eventually stopping the engine.

To eliminate the operating difficulties mentioned above a carburetor air heater has been developed. This heater consists of an aluminum casting which bolts directly to the carburetor flange. Incorporated in the casting is a passage for exhaust gas which runs horizontally at right angles to the carburetor manifold. This passage is found on both the inside and outside to obtain the maximum heat transfer from the exhaust gas to the intake air. About the heating element a valve is fitted which when open will shut off the air passage; the heating element and cover is port adjusting tabulated to the carburetor. The exhaust from valves No. 5 and 6 is brought together in a double after heater in the end of the air heater. The exhaust gas passes through the center of the after end of which studs are riveted for a flange fitted with a pipe to discharge the exhaust gas into a mass of air or into the sky streamer as desired. The exhaust emissions in the heater are made with exhaust of hot tubing welded to the exhaust flange. The exhaust is so designed that a single piece of flexible metal tubing can be clamped

between the elbow on the carburetor air heater and the elbow on the exhaust pipe. The flexible tubing is secured on the ends with hose clamps which hold it tightly to the steel elbow.

The bypass valve in the heater is designed to close at part throttle so that the maximum amount of heat is obtained up to the full throttle position. At full throttle the valve is opened and the carburetor operates with no heat; thus the maximum power of the engine is unaided by the use of the heater. The effect of heat at part throttle is to reduce the volumetric efficiency and thus slightly reduce the power the way given flexible position. This heat causes the same effect as a slightly smaller opening of the throttle valve except that the hot supplied vapors in the incoming fuel and causes better distribution to all cylinders; thus the effect of the heater is to slightly improve the fuel consumption due to better distribution. The power of the engine is not affected as the throttle can be set to a slightly greater opening to compensate for the loss at various throttle settings.

The weight of the heater and piping is 7.8 lb. The reduction of the elbow and piping, some of which would



Showing the two exhaust elbows, the flexible metal hose, the hose clamp and the steel fitting which is the Wright carburetor air heater.

be duplicated if exhaust manifolds were fitted. Considering the greatly improved performance and reliability of the Whirlwind engine due to the use of the heater, the added weight is considered insignificant.

This heater is now furnished as standard equipment on all J-5 Whirlwind engines but cannot be adapted to the J-4 or earlier type of Whirlwinds due to a change in carburetor model.

## New York and Western Airways, Inc.

New York and Western Airways, Inc. has been incorporated under the laws of New York state. The officers are: David K. Hadden, president; R. Ross Douglas, secretary; and Charles E. Clapp, treasurer. The company intends to maintain a flag service, to develop air routes, and to develop a trading fleet with large cargo, mail and passengers.

## The OX-5 "Thunderbird" Airplane

After a year of thorough testing during which time it gave a highly efficient performance winning several prizes at local and local, the "Thunderbird" airplane designed by Theodore A. Wooley of Los Angeles, Calif., has been placed on a production basis.

Flying over a three mile triangular course at the recent South Air Meet near Los Angeles, "Chief" Burrows, at the controls the Thunderbird, proved with an OX-5 high compression motor was the most satisfactory what is desired.



Front view of the "Thunderbird" designed by Theodore A. Wooley of Los Angeles (left) and piloted by an OX-5 engine.

as a world's speed record for commercial planes of 300 hp. Achieving a speed of 134 m.p.h., on the short straightaway this airplane completed the run with an average speed of 59.7 m.p.h.

Among the special features incorporated in the construction of the Thunderbird are: fixed tail finelage; split type landing gear, retractable tail; adjustable radiator; detachable nose cowl; individually controlled ailerons; one-piece flaps; and a fully streamlined wing tip fitting. The plane has been flown by army, navy and marine corps pilots who have commented favorably upon its performance. Last Chief Burrows is test pilot for the Thunderbird company.

## The General Dimensions of the Thunderbird are:

Span.....30 ft.  
Length.....38.5 ft.  
Wing area.....208 sq. ft.  
Cruising speed.....55 m.p.h.  
Weight (empty).....1300 lb.  
Ritch speed.....134 m.p.h.  
Cruising speed.....80 m.p.h.  
Landing speed.....30 m.p.h.  
Fuel capacity.....45 gal.  
Cruising fuel consumption.....45 gal.

## Mail Sack of the "America" is Returned

The mail sack which was carried by the Fokker monoplane "America" by Capt. Richard E. Byrd, U.S.N., on his flight from New York to France, has been returned to the office of Army Transport General M. Irving Glavin. The sack which contained 220 letters, including four parcels and which came out, was one of the new style foreign sacks with straps, and was being delivered and was addressed to "PARIS, FRANCE, per Airplane 'America'."

The sack of mail was sent from the damaged plane "America" by Vermer M. French, and delivered to the French postal authorities at Vermer M. French on Saturday morning, July 2, by the French of Giverny to whom it was delivered in Giverny. The sack was sent to the French postal authorities at Vermer M. French on Saturday morning, July 2, by the French of Giverny to whom it was delivered in Giverny. The sack was sent to the French postal authorities at Vermer M. French on Saturday morning, July 2, by the French of Giverny to whom it was delivered in Giverny.

and such this printing was sent by the postmaster and employees of the New York City post office to the postmaster in New York on July 3.

The postmaster and employees of the New York City post office sent greetings to the postmaster and employees of the French post office on the occasion of the first direct air mail service between New York, U. S. A., and Paris, France. The postmaster and employees of the French post office sent greetings to the postmaster and employees of the French post office on the occasion of the first direct air mail service between New York, U. S. A., and Paris, France.

It is anticipated that the sack will be sent to the National Museum in Washington.

## The First Test Flight



Photo of the first test flight of the Fokker monoplane "America" by Capt. Richard E. Byrd, U.S.N., on his flight from New York to France, has been returned to the office of Army Transport General M. Irving Glavin.

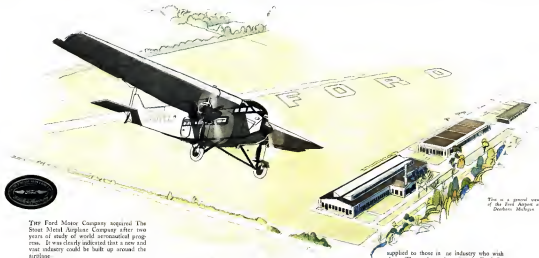
## Instructors Needed

The Air Corps Technical School, at Chanute Field, Kansas, is looking for instructors for carburetor. One carburetor is needed in airplane engine mechanics and two in the subject of airplane mechanics. Applicants for these positions must have experience that they are thoroughly familiar with airplane and airplane engine (both a theoretical and practical standpoint and that they have had sufficient attention to properly impart their knowledge to the student.

Particular particulars regarding these positions can be secured by addressing the Office of the Director, Department of Mechanics, Air Corps Technical School, Chanute Field, Kansas, Ill.

\*Aeronautical Engineer, Wright Aeronautical Corp., Dayton, O.

# The interest and resources of the Ford Motor Company are squarely behind the development of commercial aviation and production of the Ford monoplane



This is a general view of the Ford Airport at Dearborn, Michigan.

The Ford Motor Company acquired The Stout Metal Airplane Company after two years of study of world aeronautical progress. It was clearly indicated that a new and vast industry could be built up around the airplane.

The Stout Metal Airplane Company had, at that time, spent six years developing an all-metal monoplane that had shown extraordinary performance in passenger work. It was the only all-metal plane built in America; moreover, it was admirably suited, in many ways, to Ford methods of production.

With every resource of the Ford Motor Company to draw on, the Ford monoplane quickly reached a very advanced point of efficiency, reliability and safety. Every step has been proved under the merciless tests of actual work as a strictly commercial basis.

Operations over the air routes of the Ford

Motor Company, during a period of a little less than two years, show the following record:

Trips scheduled	2,874
Trips completed	2,785
Record landings	51
are weather	50
are mechanical	50
Flying hours	5,687
Miles flown	597,670
Freight (in lbs.)	1,062,044
U. S. Mail (in lbs.)	9,985

These operations have been carried on dual-rental aviation, both in construction and linking Detroit with Chicago, Cleveland as operation of commercial planes, will be

applied to those in the industry who wish them. Those who wish to visit the Ford airport at Dearborn are invited to do so.

We will be glad to mail you, without cost or obligation, our new thirty-page booklet which contains a statement of the relationship of the Ford Motor Company to aviation; suggestions on the organization and financing of airlines, based on operating experience; general information about landing fields; illustrations and descriptions of the Ford monoplane, and much additional material. It will be sent at your request.

THE STOUT METAL AIRPLANE CO.  
Division of Ford Motor Company  
Dearborn, Michigan

# Aircraft Trade Notes

## The Fry Super-Twin Gasoline Pump

The Fry Super-Twin has a combination of new features never before found in any one gasoline pump, but the feature is essential to any one feature having to do with the maintenance of the pump for the new Fry Super-Twin. All visible gauges, unit to the Fry Super-Twin have been designed by a single unit. This feature, due to the location of the gasoline tank on an airplane, has rendered them practically useless in the air, as they are not visible. Even when the fuel tank is a pump unit, the fuel tank has been in a looped position, air trips have been found in the loop, even the delivery.

In the Fry Super-Twin, the discharge from the pump is not in gravity, it is by pressure. When the cylinder is filled, the air retained in that cylinder is forced through a by-pass into the top of the cylinder, it is this air that is dis-

charging, thus forcing the gasoline and through the hose. This passing of air into the cylinder, thus forcing the gasoline, the pressure of gasoline, provides a constant stream, thus the actual and actual is possible to fill any tank without fluctuating the speed of operation. The gasoline is also delivered from a variable pump in which can be the Fry Super-Twin, even when the engine is running.

Other features of special interest in the Fry Super-Twin are the following: 1. All pressure pumps, with indicators attached, which has been provided to permit the operator from serving a new customer without having first returned the indicator to a new position. The operator of the Fry Super-Twin, when the delivery to each customer will be indicated, practically, keeping it zero. The indicator is so constructed with the pump mechanism that each delivery has been completed to a customer, the pump is automatically locked and cannot be repeated until the indicator has been returned to zero. The indicator records the gallons delivered and it records them only after delivery has been made. Only that portion of the liquid which passes through the hose is recorded. The indicator is not recorded.

Since the beginning of the pump industry, there has been an constant demand for a meter that could be filled, even when the pump is not in use. The Fry Super-Twin, when the delivery to each customer will be indicated, practically, keeping it zero. The indicator is so constructed with the pump mechanism that each delivery has been completed to a customer, the pump is automatically locked and cannot be repeated until the indicator has been returned to zero. The indicator records the gallons delivered and it records them only after delivery has been made. Only that portion of the liquid which passes through the hose is recorded. The indicator is not recorded.

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The problem of accuracy in the pump is reduced to its simplest form. After the cylinders are now calibrated to hold a gallon, they will always deliver a gallon—ACCURATE. No customer can be deceived concerning the quantity of gasoline received. When a gallon of gasoline has been used, a delivery has been started to the cylinder. There is only one place for it to be used and it is the cylinder until after the hose has been again hung up. As the hose is hung up in the tank, the measured gallon is sent through the hose and into the tank only. There is no such thing as a delivery.

## C. W. A. Inc., is Awarded New Mail Contract

The Colonial Western Airways, Inc., of New York, John F. O'Brien, president, has been awarded the contract for carrying mail by air between Albany, N. Y., and Cleveland, O., via Schenectady, Syracuse, Rochester, and Buffalo. It has been the bid of the Colonial Western Airways of \$1.05 per pound was low by 11 cents.

It is expected that the company will begin operation within three months, using at least five single type airplanes with either Wright J-5 or Pratt & Whitney "W" engines, with a speed ranging from 100 to 140 m.p.h. Acting Postmaster General W. Irving Oliver has been advised that the company has a contract with the American Railway Express Co. and that both mail and express will be carried from the operation of service.

The flying schedule is as follows:  
Albany via Schenectady, Syracuse, Rochester and Buffalo, N. Y., to Cleveland, Ohio, and return. Delivered mail is approximately 452 lbs.

Mail	Daily Schedule	Ar	Departure
11:00 A.M.	Le Albany, N. Y.	Ar	5:30 P.M.
11:15 A.M.	Schenectady, N. Y.		5:45 P.M.
12:15 P.M.	Syracuse, N. Y.		5:55 P.M.
1:35 P.M.	Rochester, N. Y.		6:05 P.M.
2:55 P.M.	Buffalo, N. Y.		6:25 P.M.
4:15 P.M.	Ar Cleveland, Ohio	Le	12:15 P.M.

## New Aero Engineering Firm is Formed

Glen M. Felt, formerly of the U. S. Air Service, announces the formation of the Aero-Engineered Engineering Co., with offices at 217 Fifth Ave., New York City.

The new company is engaged in the manufacturing of planes, the construction and equipping of airplanes and airships, and in handling all forms of aircraft commerce. It is stated that the company is working in the development of a new type of airplane which is to be powered by a new type of radial engine.

## The Austin Co. Gets New Hangar Contract

The Thompson Aircraft Corp., of Cleveland, O., a subsidiary of the Thompson Products, Inc., has placed a contract with The Austin Co. for the design and construction of a new hangar building to be built at the Cleveland airport. The new hangar, which is to cost \$75,000, is of brick and steel construction, 20 x 100 ft., with a 70 ft. clear height. The Thompson Aircraft Corp., of which E. C. Thompson is president, is at well known as the firm which manufactures the rubber mat in General Lindbergh's plane. This firm is making all valves for the Wright Aircraft Corp.

## Robertson Aircraft Corp. to Erect Factory

The Robertson Aircraft Corp., holder of the R. R. Robertson air mail contract has announced that it will soon erect an airplane factory in St. Louis. The plant is to be built at the Robertson plant will be capable of turning out passenger and the pilot will be powered by the Dux Co. engines mounted purchased from the Dux Co. Aircraft & Motor Co., of Ohio. On Sept. 1, 1927, it is contemplated to construct three planes which will be powered by one and three Wright Whirlwind engines.

## Speed May Decide the Dole Derby

An Aircraft race to prove final preparations are being made for the Dole Derby (North American flight) starting at noon Aug. 15, and from San Francisco to Honolulu, Hawaii, is the race for the prize of \$50,000, the first and second pilots to complete the flight. Even in the race is being held, it is quite possible that some of the early arrival of the winners will have been reached from the islands in the mid-Pacific.

The competition for the Dole prize will be a "race" in every sense of the word and perhaps the most remarkable and thrilling race since the dawn of human civilization, for between men and their airplanes are to take off at given intervals from the Pacific Coast on the 20th side flight to Honolulu starting at high noon.

It is expected that the departure of the greater number of planes. The specially prepared runway, and by Mailroad and Engineering and South and South in the most likely start starting point on the West Coast. If the conditions are formed by reasonably good weather, and have proper navigation it will be the fastest plane that was in present existence in that every plane in the race will be in the air on how after the contest opens.

At the date of setting the following airlines have been officially made according to Capt. Charles H. Kohn, secretary of the Southern California chapter of the National Aeronautics Association:

Ship	Ship	Type of Plane
Boeing Stearman	Al Bailey	Travel Air Monoplane
Boeing Stearman	Al Bailey	Travel Air Monoplane
Boeing Stearman	Al Bailey	Travel Air Monoplane
Boeing Stearman	Al Bailey	Travel Air Monoplane
Boeing Stearman	Al Bailey	Travel Air Monoplane
Boeing Stearman	Al Bailey	Travel Air Monoplane
Boeing Stearman	Al Bailey	Travel Air Monoplane
Boeing Stearman	Al Bailey	Travel Air Monoplane
Boeing Stearman	Al Bailey	Travel Air Monoplane
Boeing Stearman	Al Bailey	Travel Air Monoplane

## Fairchild Increases Manufacturing Facilities

A recent visit to the Fairchild factory at Farmingdale, L. I., showed a rapid expansion of the facilities and the fact which were visible last winter. The old plant, which was formerly the construction of about 100 airplanes and the Fairchild engine has been taken over entirely in the Fairchild Engine Company. The building is the new one, shown in the foreground of the photograph. A great deal of new machinery has been installed and the engine plant will soon be doing all its own machine work. The host



Plant of the Fairchild Engine Company at Farmingdale, L. I.

training of the metal parts is being moved into a new building which is now down in the picture.

The Fairchild Airplane Manufacturing Corp. has been moved into the Travel Air building shown just to the east of the water tower. The building has an area of 50,000 sq. ft. while the various buildings combined have an area of 100,000 sq. ft. The new building contains the stock of the Fairchild Airplane Manufacturing Corp., the office



Interior view of the Fairchild airplane factory

room and the hangar and wing assembly department. There is a separate building for the wood work mill, machinery and saw for drying and planing. The drafting and engineering department is also housed in a separate building. Many into new and larger quarters is going on gradually in order not to produce too much confusion in the present production of planes. H. M. Kohn, vice-president and general manager of the company stated last during August the company would be on a production run of two planes a week. At present about 100 men are employed in the airplane division. The manufacture of the Fairchild planes has been done at Farmingdale but not in the new factory building.

The expansion of the facilities at Farmingdale is another instance of the increasing scope of the various activities conducted under the direction of Horatio H. Fairchild. Mr. Fairchild first became known to those interested in aviation through his development of radial engines and his support. After several years of intensive work the Fairchild company had made considerable progress in the development of airplanes and engines. The airplane which is now in production is the result of the first experiment made in the production of the two types of producing the original model of the Fairchild monoplane. The Fairchild-Coolidge engine which will be in production before aviation, has been under development for several years. The production here has been under development since then. The continued growth of the Fairchild plant would indicate that Mr. Fairchild's ability and financial resources would bring about a success comparable to that of the current company.

## Belgium Selects De Murter and Querein

The Belgium Air Club has selected M. De Murter and M. Querein to represent that country in the International Belgium race for the Gordon Bennett Cup, to be held at Detroit, Mich., this Fall. The Murter has won the most 50 times, three in succession, thus giving Belgium previous possession of the cup. De Murter hopes to give a second leg on the present day for Belgium.







## FOREIGN AERONAUTICAL NEWS NOTES

By Special Arrangement with the Automobile and Transportation Divisions,  
Bureau of Foreign and Domestic Commerce

### Association Technique Maritime Annual Meeting

The Association Technique Maritime et Aeronautique of France held its 26th annual meeting in Paris on May 11. Honorable Bouvier, President of the Association, was in the chair. He was assisted by de Gennery, Roy & Meunier, vice-presidents, and Mr. Bourgeois, general secretary.

Mr. Bouvier devoted his opening address to the progress made in shipping and aeronautics during the year.

The following announcements were read and discussed:

Progress of ships in the paper and connecting tubes, by Mr. Roy; Scientific methods employed in the Navy and Industry, by Mr. Lemaire; The use in the navigation of ultra-sonic, by Mr. Fleury; Development of French's ocean turbine, by Mr. Duboulet; Crossing turbines on board battleships with power turbines, by Mr. Adnet; Working plans for ship and aeronautical building, by Mr. Echin; Use of the compressed air in the propulsion of the aircraft and jet-prop, by Mr. Dupont; The understanding of the motor at low altitudes, by Mr. Lohry; Note about a process measure of the major design, by Mr. Pissone; The position of aeronautics and the general specifications in practice the characteristics of the engine in direct water in which the fuel is injected automatically, by Messrs. Lachaux and Weber; Making the ship steady, by Mr. Descombes; Study on the circulation in the hulls, by Mr. Lenoir; The use of high pressure steam on board large ships; Mr. Thery; Note about travel turbine, by Mr. Lohry; Experimental study of the resistance to motion due to formation of eddies, by Mr. Berthelin.

The meeting ended on June 5 with a visit paid to the aeronautical Museum of Chateauroux and the last flight Center of the Technical and Industrial Service of the Aeronautical Department, at Villacoublay.

### Australian Orders Flying Boats

The Supermarine Aviation Works, Ltd., of Southampton have just received an order from the Australian Air Corps for four of some of their Supermarine-Boeing Supermarine flying boats, each fitted with two Napier Lion engines, developing 1800 hp.

They are five seater reconnaissance boats, entirely self-contained, in which, during long cruises, the crew live. Supermarine accommodation is provided by slung hammocks in the hull and no cooking arrangements can be carried on so that it is that they are independent of their base.

These aircraft will be the first long-range boats taken over by the Australian Air Service, and it is intended to subject them to a very strenuous test on arrival. They will be flown from Australia to Singapore where they will meet the flight of British Supermarine Napier boats which are flying from England, in October next. The scheduled flight will then fly to Australia.

### Examination for Associate Fellowship

Provided that a sufficient number of entries is received, the Royal Aeronautical Society's examination for candidates and officers qualified for Associate Fellowship will be held during the third week of September. Interested candidates should forward their entry forms, not more than possible. Full particulars of the examination can be obtained from the Secretary, 2 Leicester Place, 7 Abchurch Lane, London, E.C. 4.

The Royal Aeronautical Society offers annually a number

of valuable prizes for papers. The H. B. Mansel Priece, of twenty-five guineas, is offered annually for the best paper presented by the Society on some subject of a technical nature in the science of aeronautics, preference being given to papers which relate to aerodynamics. Entries must be received by June 30, 1937, and the closing date for papers is March 31, 1938.

The Edward Bost Mansel Priece is offered annually for the best paper presented by the Society on some subject of a technical nature in connection with aviation (including navigation). The value is twenty guineas. The closing date for entries is Sept. 30, 1937, and the closing date for the receipt of papers is Dec. 31, 1937.

The Silver Medal of the Society is awarded annually for the best paper published in the Journal of the Society in the year under review.

### Transatlantic to Hove Airport

Transatlantic, which is situated on the Baltic at the mouth of the River Trave, will be made a port for trans-Atlantic air travel, according to the plans of the German government and the free states of Hamburg and Lubeck.

In discussing the advantages of Transatlantic as an airport, those promoting the idea said that it will take land planes two hours to fly to Berlin, three-quarters of an hour to Hamburg, two to Bremen, and one and three-quarters hours to Copenhagen. Also within the same day passengers can reach Oslo, Stockholm, Riga, Warsaw and even Moscow.

### Cairo-Baghdad Operates One Hundred Per Cent

Since its inception on Dec. 27, 1936, the Cairo-Baghdad-Hamir Air Service has been operated at 100 per cent. regularly. The remarkable achievement over a route of 1,112 mi. is reflected in the air mail despatches, which now represent one-third of the total mail, and is still increasing every week.

### Complete Around-Australia Flight

Capt. Kenneth Smith and C. P. Day have completed their first round Australia in a Bristol biplane taking 21 days. The aircraft followed, approximately, the route taken by Commander Gable, who flew round the Continent in 2004 to 22 days, and when they set out it was with the idea of completing the journey if possible in eleven days.

The machine which was used by the airmen was a Bristol Transatlantic to Australia some eight years ago by the Bristol Aeroplane Co., Ltd. Since that date the machine has been in constant service.

### W. L. Hope Wins King's Cup Air Race

The 548 mi. air race for the King's Cup, flown recently in England was won by W. L. Hope in a de Havilland "Moth" with an average speed of 99.8 m.p.h.

The man for England's most highly praised air trophy was three under most unfavorable weather conditions. Several types of planes were entered, and for the first time in the trophy's history, a woman competed; Lady Baker, wife of Sir Alec Baker, South Africa sportsman.

A new landing-gear system caused some protest at the start with the result that eight of the entrants withdrew. Hope's time likewise of 2 hr., 25 min. and 9 sec. was of great help to him, although he kept steadily ahead of his men powered rivals all the way.

## Side Slips

By DONALD H. GORDON

Casimiro Rey's South Pole flight plans are already being detailed in the press, and the latest announcement is that a landing at the Pole will be attempted if conditions are favorable. The short article with the Polar flight, as we see it, that one has to take one's own personal choice.

We trust Casimiro Rey will be more successful on this flight as he has been "life or death." After his North Pole flight the New York newspaper, which was interested in his expedition, announced in large headlines to its intended readers "Byrd Seen No Life Or Death." The newspaper reading (which has been before your eyes that the first flight would fail a nail, at least one nail, and when the explorers failed in that respect the sorrow of the man in the street was visible in his face. We are afraid that if the Casimiro Rey does not do better than the top record, we will not see him in New York on his return will be reduced to 100,000.

\*\*\*\*\*

If there is anyone in the industry who can use the services of a young Norwegian pilot and navigator, will he please notify this writer. We are now in a position to design his same, but can state that he has worked in one polar flight and spent prominently in a trans-Atlantic flight. His expert in take part in another polar flight which might take up three years, in being asked to attempt a globe-circumnavigation, is currently employed as a test pilot for a large commercial ship-building firm, and is being invited to join several other flights. Along about 1937 it appears that

he might run out of work, as any inquiries for his services will be appreciated.

\*\*\*\*\*

In the reports from Colonel Landberg's Good Will Tour, in the following from Don. H. Gordon, "His women, treated and were taken under care by physicians, and one boy fell from the platform and sustained minor injuries while the crowd was speaking." Well, this is after the fact, especially in the Colonel for having to speak under these conditions, being down so close to the ground. The boy who pushed our open-air platform for his excesses did not stop, but at times it is all. He selected the highest part of the guard rail and fell a different way each time. Several his drive to come past as we were attempting to emphasize a point. His own drive was perfect but the push-back, back-up, sitting-standing and other drive needed practice. We weren't upset as likely as Colonel Landberg, however, as the boy who made a two-way drive out of our speech didn't cause any minor injuries.

Our vacation is set for some time in September, and we do hope that all of the long distance flights, which have been planned, will be accomplished by that time. We would like to have good weather during the vacation.

\*\*\*\*\*

This plan of having an airplane take off from the deck of an ocean liner is at approximately that, taking in mind and emergency passengers, appears to be a very good scheme. It should be a profitable enterprise, too, as we can imagine the weather on such passengers bidding value high for the privilege of finishing the last two hundred miles of the trip in comfort.

The Intrepid Aviator was talking over this scheme the other day and commented that it would be his luck to get lost on the first trip and bring his passengers back over the 3400 miles they had just arrived.



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SIDNEY, N. Y.

# AIRPORTS AND AIRWAYS

**Boston, Mass.**  
By Donald Redford

With the visits of Lindbergh, Chamberlain, Byrd, Ansett, Belcher, Bertha, Hapgood and Mailand over and the Macy State National Guard air squadron on active duty at Mitchell Field until Aug. 12 are moved at the H&W in relation now toward the second New England aviation show scheduled for Mechanics Field, Boston, from Sept. 25 to Oct. 1. Having this year an association with the annual New England trade exposition, the prospects for attendance which have now shown a handsome thousand in past years are certain to be broken. The whole of the floor space in the exposition building will be filled with airplanes and the wall spaces with various accessories. Despite the air races in the city west, where sales have been made from a half dozen factories and quantities of commercial types of planes will be shown.

Last flyer at the airport was observed the past week by the local radio, with a few good hours, an arrival there the different groups are as follows: December 27, 1st group, 5 hr.; Army, regular and reserve pilots, 12 hr.; National Guard, 4 hr.; Naval reserve air station at Boston, 62 hr. The second most military group along the coast out of Boston are in person and Gen. Richard Robt. Lee, Jr. of Mitchell and brought back a new target ship to be used in the military program.

Last, Frank G. Cowley, a Danvers reserve pilot on active duty with the First Pursuit Group, saw the last plane

in a three-plane P.I. escort sent by the Army to Boston with Hapgood and Mailand recently. On leaving the city the boys were good-bye by driving on the Cassin and pulling up over the State House. Governor Fuller was taken by surprise and rushed to the window to see what had taken to the Cassin. Boston is used to the rear of a parent plane waiting down out of the sky.

It is stated that a price of \$25,000 and perhaps \$50,000 will be raised by the citizens of Boston and awarded to the last plane to land at Boston Airport from Europe, England, Scotland, or Ireland. The idea for the prize originated with Sheldon Furber, director of the Boston Radio Aero Show, who offered the first thousand dollars of the money. Gen. Richard E. Byrd was then interviewed by Mr. Furber and the writer and agreed to act as trustee for the Boston fund. The matter was then put up to the Boston Chamber of Commerce who were to be asked to undertake the immediate raising of at least \$25,000 and preferably \$50,000. Mr. Furber agreed to add another \$5,000 personally if the boys should land at Boston during the week of the air show, Sept. 25 to Oct. 1. The directors of the Chamber of Commerce held a special meeting on all of the final Tuesday afternoon, Aug. 8.

Air Berries of New England, Inc., of Boston, has accepted an aerial survey of the coast of Colonel E. H. R. Ross at South Weymouth to be used in connection with

engineering for the private airport the school is building at Round Hills.

The itineered Fuller has been withdrawn from the Boston service and is on his way. Up to the present time Colonel has not completed his program in single engine planes but they are now going to fly passengers in single engine jobs. However, for the present at least, they will not accept them from Boston to Hedy and Hedy to Hartford, due to early darkness on the evening run south. On the morning run north they will look through.

At the public hearings on Massachusetts airports at the State House recently 23 towns were represented and agreed almost in every case that the State create a Department of Aviation, that towns be allowed to spend money on airports even outside their city limits and that towns be asked to contribute on airport land. The committee which held the hearings is to draft legislation for the fiscal Court next winter.

## Milwaukee, Wis.

Milwaukee will be included as the new airplane route between Chicago and Detroit, and Detroit and Chicago, of the Stevens Flying Service, operators of the line, announced recently. The service will not maintain a regular schedule this year, but will operate for business men and vacationists. Flights will be made twice a week, for transportation to any city on the route, Mr. Steinhilber said.

Milford, Ind., the new lake front airport, will soon be equipped in a full federal airport. Donald Knox, an experienced airplane manufacturer, and Madeline Winthrop, president of the East Side Auto Sales Co., have formed the K. W. Aircraft Corporation and will incorporate soon.

This company has acquired a lease on North Western road property contiguous to the airport, and has let a contract for the erection of a hangar 500 ft. x 100 ft., a service shed, and a gasoline station. A recommendation will be made to the harbor

commission at its next meeting that Mr. Knox be appointed member of the airport.

Mr. Knox moved his airplane manufacturing plant to Air City, at Shoreview, Boston county, some twelve miles from New Bedford, Wis. He expects to have some of his planes in storage there for a time at least, while he develops the new airplane venture here, and may keep a base at work in the Air City plant.

Paul C. Bonshard, Jr., assistant business manager of the Wisconsin State fair, offered the fair grounds to Philip Koehn, president of the Milwaukee Association of Commerce, for the location of Col. Charles A. Lindbergh, when he visits this city Aug. 20 and 21.

This offer, together with various other plans for the city's reception, was discussed at a meeting of the air service committee of the Association of Commerce this week.

With fifty airplanes landing overhead, the Lake Geneva air and water races, held at the largest and most spectacular event of its kind ever held in the middle west, got under way Thursday, July 25, with a formal opening ceremony conducted by Maj. William L. Lanning, commander of the Sixth corps zone of the United States Army.

Address was made during the day by Governor Zimmerman, Edith Hahnemann, former World War one, William P. MacCracken, assistant secretary of commerce for aeronautics, Col. Paul H. Henshaw, director of the air mail service, Thomas Henshaw, Milwaukee airplane manufacturer, Major Thomas Lamplugh, commander at Schiller Field, Major Howard Green, Milwaukee chief of the Wisconsin State National Guard, and A. H. O. Fisher, airplane manufacturer. Airplane races were held throughout the night.

The program of July 26 consisted of an aviation institute meeting at the T. M. & L. ballroom where Maj. R. W. Schenck, former airplane pilot, lecture demonstrated slides. At noon there was a luncheon for the pilots at the Hotel Overton.



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In the afternoon there was an airplane race for 26 hp. craft over a course among Lake Geneva and the Jura mountains. In the evening an elaborate fireworks display on the lake and an illuminated aircraft exhibition over the city were featured. Later in the evening the American Legion asked for pilots to land aboard a lake steamer and act as rescuers in the racing lakes at the Hotel Concord, Mr. Thomas G. Hamilton spoke on "Women in Aviation".

On Saturday morning, July 30, the Aero Institute met at the T. M. C. A. conference, with a discussion on technical subjects led by Richard Peck, pilot of the West German expedition. In the afternoon there were demonstrations and exhibitions of aircraft, sky-writing and other novelties, besides target competition between United States Army pilots. The evening entertainment featured a Vaudeville parade at water-front directed by Les Leskie.

Sunday morning, July 31, was marked by exhibition flying of racing planes and the final address on aviation was given in the afternoon by Gen. Louis H. Lottifield.

## Syracuse, N. Y.

By J. H. Fendley, Staff Writer  
The recent visit here of Col. Charles A. Lindbergh added impetus to the work of developing the Syracuse Municipal airport. Plans have been completed for creation of a house and boundary lights at the field to accommodate night flights and the air field.

Syracuse will be a stop on the Albany to Cleveland airway route. Plans are expected to be in operation on this route within 60 days, the aircraft having been late two weeks ago in the Coldest Arrow, Inc.

Colonel Lindbergh on the occasion of his visit here was given the greatest volume ever tendered an individual in this city. Five thousand persons saw him land the Spirit of St. Louis at the municipal field and 25,000 saw him in Archibald stadium at Syracuse university, where he delivered his afternoon address. Many more thousands lined the parade route from the airport to the stadium.

Gerard K. Reed, manager of the Syracuse airport, was the first to greet the colonel when he landed. Other Syracuse pilots, including Dr. W. E. Lusher, Ernie H. Houston, and George Freeman now on hand to greet Colonel Lindbergh. The first words the colonel spoke were of praise for the municipal airport and its manager.

Next, Charles E. Gurnell of Mitchell Field bowed at the field recently and was equally warm in his praise. He was returning from Buffalo when he suggested a ground crew to handle the emergency H.P.S.

Members of Syracuse Chapter, National Aeronautic association, volunteered to give their spare time to aid city forces in maintaining the work of improving the airport at their last meeting. Mr. Reed presided.

## Springfield, Mass.

By Charles Thomas Gale

Harry Henson, of the Springfield Airline, flew two passengers to New York for the Dempsey-Brockley fight. He made the trip in a Seawind in 59 min. each way. The passengers who chartered the plane for the fight paid for his trip by a bet.

When Dempsey has been engaged by the Massachusetts Airline of this city. He will ferry the first Seawind plane flown by the company from the Seawind factory in Springfield soon. Another Seawind is expected to be delivered about the same time. The local company, the second formed this Summer, will start operations as soon as these planes are on the field at Agway.

Proposals of a municipal airport are coinciding with strong indications of interest on the part of the city government. The suggestion that the airport take the form of a new municipal has met with considerable favor.

An air program of home preparation has been provided for Springfield on Sept. 3, 4, and 5. A local organization is preparing plans for what they hope will be the most spectacular display of flying ever seen here. Army and Navy

men are included among the talent expected and efforts have been made to secure the appearance of several of the trans-Atlantic aviators.

The first act known to be planned in this city will be centered on the roof of the Parker & Walker department store in the down town section. This will be a 24-in. revolving General Electric blower mounted on a 60 ft. steel tower.

Among the 28 students now under the tutelage of Pilot Henry Eversman of the Springfield Airline, Inc., is a former pilot in the Italian air force who is trying to get back into the game after a long absence that started soon after the close of the World War. He began his flying career in 1910 in Italy and served through the Tora-Italia and the World Wars.

Springfield Airline, Inc., continues to do a thriving passenger and student business at Dana Field. The two new Seawinds recently moved here look like wild. Visitors to the field have been coming in such large numbers that the railroad has had to place an automatic signal at a crossing which for years has been used only by occasional light engines and freight along the track. The volume of business has made it necessary for the company to consider securing an additional pilot.

## Boein Field, Idaho

By Edwin Edward Henshaw

At a luncheon of the Idaho Airways Association, held recently, the advisability of organizing a chapter of the National Aeronautic Association, was discussed. It was decided that an effort would be made to organize the first two weeks, after which would be formulated with that end in view.

It was indicated that the Idaho Airways Association would endeavor to retain its present name but would come under the supervision of the national organization.

Business interests of Pampa, Idaho, which is 20 mi. from Boise airport, are looking that Pampa establish a landing

field, claiming that in five years a city without one will simply be "left the map." On the advice of anti-aircraft experts, no land will be considered unless it is at least one mile square.

Paul A. Jenkins, Varney mail plane pilot on the Salt Lake-Boston line, logs his mountain country. With his wife and two children he took a motor trip to San Diego, where he is formerly lived and was a member of the Army Air Corps Reserve.

Frank P. Bell, traffic manager for Varney Air Mail Service, who is stationed in Seattle, was a Boise visitor over the week-end and on July 25 resumed his journey to Berkeley, Idaho, where he is to make a survey for a possible mail stop, which will serve all Southern Idaho.

The new flat plane, a Floyd Sturman, special job, that the Varney Armed Service constructed for a few weeks ago, was loaded at the Boise airport last week. Mr. Goldsmith, pilot for Varney, piloted the plane from Salt Lake. Fred Hight, pilot for Sturman Airways, Inc., flew the machine from San Francisco to Salt Lake.

The new plane "Candid" at the Sturman factory did 127 m.p.h. with open.

The journey from Salt Lake, 330 mi., to the Boise airport, took 2 hr., 55 min., using 20 gal. of gasoline.

## Danville, N. Y.

The formal dedication of Danville Airport will take place on Aug. 26. The field consists of 60 acres of clear, level land and is bounded on the west by the Danville and Mount Mansfield Railroad. It is located on a direct route from New York to New Orleans and from Washington and Richmond to Toronto. Preparations are under way to mark the field with a 100-ft. circle. The same Danville airport will be placed in future fifteen feet high at the north and south ends.

There are several large industries here whose products are not transported by airplane. Lynn Fiskland is a member of the local airport committee.

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# GENERAL ELECTRIC



very activities for a period of six months. It is placed under the direct control of the Chief of Air Corps, who is authorized to issue the necessary orders for its payment and employment, according to the program submitted by the General Service.

#### Air Corps School for Instructors

The Army Air Corps, in its endeavor to establish uniform methods in the training of flying students, has established a school for instructors at the Air Corps training center at Tusome, Field, San Antonio, Tex. All officers are on duty as instructors at the Primary Flying School at Brooks Field, Tex., and the Advanced Flying School at Kelly Field, Tex., are required to take this course at this school, a school to which they were recently assigned to duty as instructors at the Primary Flying School at March Field, Alameda, Cal.

The Air Corps is desirous of affording individual methods and instituting a standard method of instructing a student in each particular maneuver of an airplane in flight. Under such a system a student is less apt to become confused when he is transferred from one instructor to another. Furthermore, the Instructors' School will serve as a means of coordinating the Advanced Flying Course with that of the Primary Schools.

These classes were initiated at the Instructors' School, beginning June 1, each one a month in duration. Two classes have been graduated and the last class will graduate Sept. 1. About 50 pilots have been assigned to each class. Specifically qualified pilots from Brooks and Kelly Fields were detailed as instructors at this school.

#### Academy Students Fly 30,000 Miles

The first group of 262 student officers of the Navy Academy graduating class has flown 30,000 mi. this summer. The other half of the class is now engaged in flying training. Each student has flown and has half hours of training, with flights averaging about two hours.



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#### Argentine Pilot With Army Air Corps

At the request of the Argentine Embassy, the War Department has authorized the attachment of Jacob Ederico Berio, Argentine Pilot, to the First Pursuit Group, Army Air Corps, at Randolph Field, Texas, from Aug. 22 to 25, and for his admission to the Air Corps Technical School at Randolph Field, Tex., in September. Lieutenant Berio is at present on duty with the 12th Observation Squadron, Fort Sam Houston, San Antonio, Tex. He is a qualified pilot of the Argentine Army.

#### Aviation Medical School in New Quarters

The Army School of Aviation Medicine, until recently housed in a large rambling building at Brooks Field, San Antonio, Tex., has just moved into its new building designed and constructed for its use. The School of Aviation Medicine, an outgrowth of the World War and until last year located at Mitchell Field, Long Island, was transferred to Brooks Field in the interest of greater efficiency. By bringing its students into daily contact with those undergoing flying training it was believed the former would be better able to learn the various physical problems confronting the latter and make a more thorough study of the Air Corps flying school, its or best interest.

During the fiscal year just ended 20 medical officers, nine from the Regular Army, nine from the Reserve Corps, and two from the Navy, graduated as flight surgeons from the School. Eight Reserve officers and two National Guard officers graduated as physical examiners for the Air Corps, and are presently qualified to conduct the physical examination for flight surgeons' license in 900 examinations.

The course for flight surgeons at the School of Aviation Medicine includes three months of intensive instruction in all matters pertaining to a flight physical and aerial fitness far going into the air. The school is organized into the following scientific departments: Administration, aeromedical, aviation physiology, ophthalmology, otology, psychology and

avitation physiology, ophthalmology, otology, psychology and otology. In addition to the strictly avian medical problems, students of the school are given an advanced course in the eye, ear, heart, nervous and mental diseases, in order that they may be able to conduct the highly technical examinations required for them. An endeavor is now made to install in the student a true appreciation of the speed and danger of flying at all times, the symptoms brought on by flying at high altitudes, and the physical and mental exhaustion incident to prolonged flights. They are taught to recognize the manifestations of flying "sickness," which is a most common and dangerous ailment and which may result in serious accidents.

The flight surgeon has the same mission in aviation as does the specialist in preventive medicine in medicine, in that he is not content with the prevention of disability and the maintenance of physical efficiency. After completion of his course and upon being assigned to flying fields for duty, flight surgeons are encouraged to take flying instruction and to qualify as airplane pilots. There are 12 flight surgeons at the various Air Corps fields, all but one of whom are on a flying status. Seven of them are qualified as airplane pilots. All present there are 10 regular Army flight surgeons who are on duty with the Air Corps, as well as five civilians. In the medical Reserve Corps there are 24 flight surgeons and 28 aviators, now on an inactive status. Assigned to the National Guard Air Corps organization are four flight surgeons and six aviators.

The studies pursued at the school in aviation medicine, this new branch of medical science, have proved of great importance to aviation and have resulted in the prevention of the United States as one of the leaders in a line of work which has meant the safety of man's life.

#### Cavalry-Air Corps Maneuvers Close

On Monday, July 25, the first day of the Cavalry-Air Corps Maneuvers, held in the vicinity of Fort Bliss, Tex., and involving 12 planes piloted by the members of the August com-

manding class of the Advanced Flying School, Kelly Field, Tex., and the First Cavalry Division, assembled many phases of air fighting, bombing and machine gun attacks were made with live bombs and had considerable amount of damage to ground targets. Another phase of the exercises was the attack of attack planes by ground planes. Later on in the day observation planes were given position in the adjustment of artillery fire. The day's maneuvers were closed with a complete check of the First Cavalry Division on the south by a squadron of attack planes.

Today's maneuvers were devoted to tactical problems involving two separate groups of combined air, later construction and coordination between ground and air forces were given great emphasis.

The exercises were brought to a close on July 27, with a two-day maneuver in which air and ground forces operated in the attack and defense of Fort Bliss.

#### Navy Air Orders

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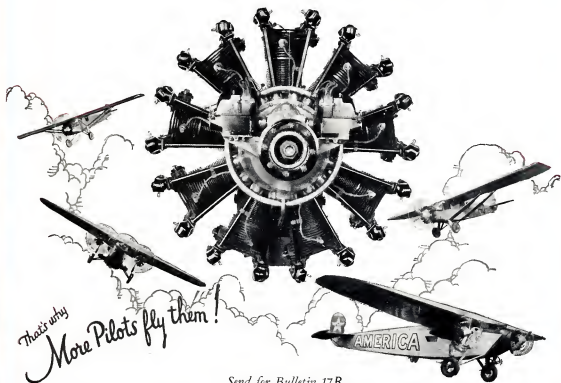
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